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Synopsis of Sphecodinae.

BY CHARLES ROBERTSON, Carlinville, Illinois.

This paper belongs with one on Andreninae, in Trans. Am. Ent. Soc., xxviii, 187-194, June, 1902, and another on Halictinae, in Can. Ent., xxxiv, 245-250, Sept., 1902, intended to put the results of my studies of the local bees in a more convenient and definite form.

The species of this group fall into several generic divisions. In the group of larger species, in which the male has the fourth joint of the antennæ long, the majority agree fairly well in structure with *Sphecodes gibbus*, which I regard as the type, and are referred to the same genus. *S. falcifer* Ptn. is made the type of the new genus *Drepanium* on account of the simple mandibles of the female. *S. ranunculi* Rob. is proposed as the type of the new genus *Proteraner*. The male has the abdomen broadly rounded at apex and entirely red, except sometimes at the base. It differs from all of the other species, and from all of the Halictinae, from the fact that the male appears in spring with the female.

In the second group, in which the male has the fourth joint

of the antennæ hardly longer than the third, the species whose females have the mandibles dentate are referred to the new genus *Stelidium*, with *S. cressonii* sp. nov. as the type, and those with simple mandibles are referred to *Machæris* gn. nov., type *S. stygius* having the vein *rm* present and the clypeus convex, and *Dialonia* gn. nov., type *S. antennariæ*, having that vein absent and the clypeus flat or a little concave.

In the paper on Andreninae, cited above, I have mentioned thirteen species in which I have found the vein III₅ wanting. I neglected to mention the absence of vein *rm* in one wing of a single specimen of *Trachandrena claytoniac*. In the Sphecolinae, on the other hand, I have found the vein *rm* absent in thirteen specimens of the following species: *S. falcifer* (1), *pimpinellæ* (3), *cressonii* (2), *stygius* (2), *antennariæ* (5). One of the last has the vein III₅ wanting in one wing and is the only example with that vein absent.

Sphæcodium cressonii is the insect I have identified as *S. mandibularis*. Specimens sent to Mr. Cresson were determined as *Sphæcodes* sp., from which it is evident that he did not regard the species as *S. mandibularis*. The structure of the mandibles of that species is unknown. *Machæris illinoensis* is based on a specimen with simple mandibles described as a cotype of *S. pycnanthemii*. The males of *S. heraclei*, *pimpinellæ* and *antennariæ* are here described for the first time. The male of *S. arvensis*, described as "entirely black, antennæ submoniliform" and *S. falcifer*, described as "entirely black" are here characterized for the first time.

S. dichrous Sm. is probably based on the female of *S. arvensis* Pttm. and the male of some other species, and *S. confertus* Say may be the same as *S. falcifer* Pttm., but at present I prefer to use Patton's names.

In this paper cell III₅=second cubital cell; vein *rm*=the first transverse cubital nervure; vein III₅=the second transverse cubital nervure; "joint" refers to antenna, "segment" refers to abdomen; "enclosure"=the enclosed space on the disc of metathorax.

In my opinion these bees are inquilines of the Halictinae and

the genera here recognized will be found to infest the nests of different genera of that subfamily.

FEMALES.

Mandibles yellowish or reddish, the tip darker ; small or middle sized, 3.
Mandibles rufous, base usually largely black ; large or middle sized, 1.

1. Mandibles simple ; labrum long, strongly notched ; mesonotum closely punctured ; segments 4-5 more or less black ; vein *rm*. short

Drepanium falciferum.

Mandibles dentate ; labrum short, rounded or truncate 2.

2. Joint 4=2+3, or nearly ; abdomen narrow, evenly, coarsely, distinctly punctured, entirely red, segment 5=4, or longer ; clypeus finely and densely punctured : mesonotum coarsely and closely punctured ; cell III₅ strongly narrowed above.

Proteraner ranunculi.

3. Mandibles dentate. **Sphecodium.**

Mandibles simple 4.

4. Vein *rm* wanting ; clypeus short, flat ; mandibles long ; mesonotum shining, greenish, finely and sparsely punctured ; metathorax short, enclosure poorly defined, with longitudinal raised lines.

Dialonia antennariæ.

Vein *rm* present ; clypeus longer, more convex **Machaeris.**

MALES.

Joint 4 longer than 2+3, which are equal ; abdomen red, except sometimes at base, apex broadly rounded . . **Proteraner ranunculi.**

Joint 4 hardly longer than 3 2.

Joint 4 about equals 2+3 1.

1. Joint 3 twice as long as 2 ; flagellum notched beneath towards apex ; mesonotum closely punctured ; mandibles red ; vein *rm* short ; abdomen black, segment 7 red, at least at apex.

Drepanium falciferum.

Joint 3 not twice as long as 2 ; vein *rm* little shorter than III₅.

Sphecodes.

2. Clypeus ; vein *rm* wanting ; metathorax smooth, shining, with some longitudinal raised lines **Dialonia antennariæ.**

Clypeus convex ; vein *rm* usually present. . **Sphecodium** or **Machaeris.**

SPHECODES Latr.

FEMALES.

Vertex with a distinct tubercle ; mesonotum closely and coarsely punctured ; abdomen finely and sparsely punctured, segments 4-5 black. **heraclei.**

Vertex ordinary 1.

1. Abdomen rather evenly, coarsely and distinctly punctured, segment 5 more or less black; clypeus and mesonotum sparsely punctured, the former a little more coarsely; cell III₅ short, its sides parallel **arvensis**.
 Abdomen, at least segment 1, impunctate or nearly so 2.
2. Mesonotum shining, sparsely punctured, not sulcate, sometimes with a median raised line; abdomen entirely red, almost impunctate **minor**.
 Mesonotum less shining, more closely punctured, strongly sulcate; segment 5 black, 2-5 rather distinctly punctured basally.

clematidis.

MALES.

- Flagellum submoniliform, without distinct facets beneath; abdomen red, segments 3-6 more or less black **clematidis**.
- Flagellum with joints 4-13 notched beneath and presenting distinct facets; abdomen entirely black 1.
1. Vertex with a distinct tubercle; mesonotum with coarse confluent punctures; abdomen more shining, less closely punctured, apex thinly pubescent **heraclei**.
 Vertex ordinary; mesonotum with punctures less coarse, more distinct; abdomen more opaque, more closely punctured, more closely pubescent **arvensis**.

SPHECODIUM.

FEMALES.

- Flagellum, mandibles, tibiae, tarsi and abdomen red; head and mesonotum closely and finely punctured; cell III₅ very short; enclosure short, semicircular **pimpinella**.
- Flagellum, tibiae and tarsi darker 1.
1. Enclosure distinct, coarsely reticulated; labrum entire; mesonotum usually greenish, shining; segments 4-5 usually black.
cressonii sp. nov.
 Enclosure short, poorly defined, with longitudinal raised lines; labrum more or less emarginate; mesonotum black 2.
2. Abdomen entirely black; slender **smilacina**.
 Abdomen red, except segments 4-5; robust **pycnanthemi**.

MALES.

- Enclosure short; scutel closely punctured, rather opaque; abdomen without red; vein *rm* wanting in known specimens . . . **pimpinella**.
- Enclosure longer; scutel sparsely punctured, shining; abdomen more or less reddish; fresh specimens compared with *Machæris stygia* have the pubescence longer, whiter, more dense, especially on clypeus; antennae, tegulae, nervures and reddish color of abdomen, when present, paler; mesonotum anteriorly, pleura and metathorax less coarsely reticulated **cressoini**.